

REMARKS/ARGUMENTS

Claims 1-10 stand in the present application. Reconsideration and favorable action is respectfully requested in view of the following remarks.

In the Office Action, the Examiner has rejected claims 1-10 under 35 U.S.C. § 103(a) as being unpatentable over Wolf et al. Applicant respectfully traverses the rejection.

The Examiner asserts that Wolf discloses the use of perceptual measures in calculation of synchronization errors. It is acknowledged that the Wolf reference does measure synchronization errors, but it does so by measuring the differences in delay between the audio and the video signal. In other words, should delay experienced by the audio signal be the same as that experienced by the video there would be perfect synchronization.

Wolf also describes the measurement of the role of human perception in determining the quality of a signal. Referring to Figure 3 of the cited reference, the perceptual quality of the signal, as influenced by the impairment inflicted on the signal between the source and the destination, is measured both by a viewing panel and objectively, and the results produced by the viewing panel are used to determine how the objective measures relate to human perception of the errors. There is a passage on column 9 describing how if there is no motion at all in the source video then time alignment is unimportant.

However, human perception of lack of synchronization relates not merely to the amount of motion in the source video, but also the nature of that motion. As described

in the present specification (see page 9), Applicant has identified that the nature of the motion concerned has a significant effect on the perceptual importance of synchronization. For example, for a single motion, synchronization is more important than for a repeated motion. There is also the special case of "the talking head" where lip synchronization is of great importance to the perception of accuracy of synchronization. Note that these do not relate to the amount of overall motion in the video element, but to specific parts of the element. In particular, in the talking head example, most of the image moves very little -- only the mouth area of the face is moving.

Unlike the cited Wolf reference, the present claims require the audio and visual elements of the stimulus to be analyzed for the presence of characteristic features indicative of the likely significance of synchronization errors, and the determination of the measure of subjective quality according to whether the said characteristic features are present. Wolf does not require any such analysis, as it does not attempt to identify any characteristic features indicative of the significance of synchronization errors. Thus, Wolf does not teach or suggest the last elements clearly recited in the independent claims.

Wolf analyzes the delays in the video and audio signals, apparently independently, and the synchronization error is determined simply by the difference in delay between the video signal and the audio signal. Note in particular, in Figure 6, that the audio and video delays are determined independently (items 15, 115) and then compared in the audio visual synchronization unit 160. No further measure is made on the output 165 of the audio visual synchronization unit to weight the value S_{ave} according to any characteristics of the audio or video source. The comparison between

the audio and video delays is the final output of the system depicted in Figure 6.

This is also illustrated in Figure 7, where again the final output is generated from the unit 160 which merely compares the values d_v and d_2 , and the respective delays in the audio and video transmissions.

Therefore, although the cited reference does refer to measurement relating to human perception, it appears that the measurements of audio and visual delay are made by Wolf quite independently, and there is no weighting of the difference in such delays to take account of the nature of the audio visual signal that is being transmitted and the consequent significance of such delay to a human observer.

An important difference therefore is that in Applicant's invention the synchronization error is determined and then used to generate a measure of subjective quality which is then modified according to whether certain characteristic features relevant to the significance of synchronization errors are present. In Wolf's specification, although there may be some measure of subjective quality, and that measure of subjective quality may be used to generate a synchronization error measure, (rather than the other way round as in our specification) Wolf's measure of synchronization error is not modified or weighted according to the presence of any features characteristic of the significance of the synchronization error measured.

Therefore, in view of the above remarks, it is respectfully requested that the application be reconsidered and that all of claims 1-10, standing in the application, be allowed and that the case be passed to issue. If there are any other issues remaining which the Examiner believes could be resolved through either a supplemental response or an Examiner's amendment, the Examiner is

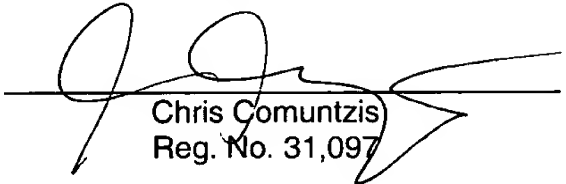
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Respectfully submitted,

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